November 3, 2016

BY ELECTRONIC FILING

Marlene H. Dortch
Secretary
Federal Communications Commission
445 12th Street, S.W.
Washington, D.C. 20554

Re: ***Spectrum Bands Above 24 GHz et. al.*, GN Docket No. 14-177, IB Docket No. 15-256, WT Docket No. 10-112, and IB Docket No. 97-95**

Dear Ms. Dortch:

On November 2, 2016, EchoStar Satellite Operating Corporation and Hughes Network Systems, LLC (collectively, "EchoStar") met with Jose Albuquerque and Chip Fleming of the Commission's International Bureau to discuss EchoStar's proposals and concerns relating to the above-referenced proceeding. EchoStar was represented by Jennifer A. Manner, Senior Vice President, Regulatory Affairs, and Jodi Goldberg, Associate Corporate Counsel, Regulatory Affairs, and outside counsel, William Wiltshire, of Harris Wiltshire & Grannis LLP.

In the meeting the parties discussed the attached talking points, which were distributed to the attendees.

Pursuant to the Commission's rules, this notice is being filed in the above-referenced dockets for inclusion in the public record. Please contact me should you have any questions.

Respectfully submitted,

/s/ Jodi Goldberg

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cc: Jose Albuquerque
Chip Fleming

In Order to Advance the United States' Connectivity Goals,
the FCC Should Adopt a Fair and Equitable Regime for Fixed Satellite Service and UMFUS

GN Docket No. 14-177, IB Docket No. 15-256,
WT Docket No. 10-112, and IB Docket No. 97-95

November 2, 2016

Overview.

- EchoStar Satellite Operating Corporation and Hughes Network Systems, LLC (collectively, "EchoStar") are the global leaders in the provision of satellite broadband services. In North America alone, the HughesNet service provides broadband connectivity to approximately 1.2 million consumers. The number of consumers is expected to double in the near future with the launch later this year of EchoStar XIX, with American consumers receiving speeds of approximately 25/3 Mbps.
- Demand for broadband satellite services keeps growing. Accordingly, EchoStar is in the process of designing high speed satellites that will operate in the millimeter wave frequencies throughout the Ka, Q and V bands. Other satellite operators are also in the process of designing similar systems. Access to the millimeter wave bands is critical if the satellite community is going to meet the demand of American consumers for satellite broadband services.
- In contrast to the record on the plans of satellite operators, the terrestrial community has failed to demonstrate a need for access to the bands subject to this above referenced Further Notice of Proposed Rulemaking ("FNPRM"). In fact, the record demonstrates that any development by Upper Microwave Flexible Use Service ("UMFUS") of these bands is many years away.
- Nonetheless, if the FCC does enable the use of these bands for UMFUS, it should be in a manner that ensures FSS operators will continue to have reliable and flexible access to the spectrum designated for their use. By adopting such a regime, the FCC can ensure that satellite and terrestrial services are both able to operate in this band, bringing the benefits of both technologies to consumers across the United States.

The FCC Should Adopt a Fair and Equitable Regime for Satellite and Terrestrial Sharing.

- **The 40.0-42.0 GHz (40 GHz) Band Should be Preserved for Use by the Fixed-Satellite Service ("FSS") on a Primary Basis:**
  - In the FNPRM, the FCC has opted not to examine the use of the 40 GHz Band by UMFUS systems, instead allowing it to remain a primary use for the FSS industry. This approach is supported by the record, where multiple satellite operators put forth evidence that they are designing satellite systems to bring broadband services to American consumers that will operate in this band in the near future. This band is particularly important to the satellite industry as a paired band for gateway and user terminals.
  - On the other hand, the support for terrestrial use of this band, as reflected in the record, is speculative at best.

- **The 47.2-50.2 GHz (47 GHz) and 50.4-52.6 GHz (50 GHz) Bands are Critical to Preserve for FSS in Order to Provided Needed Capacity for High-Throughput Satellites:**
  - The record demonstrates that the 47 GHz and 50 GHz bands are core to the satellite industry in order to support next-generation, high-throughput broadband satellites. These satellites need significant amounts of spectrum to support the sorts of broadband uses that consumers demand.
  - If the FCC enables use of these bands by UMFUS it should adopt a fair and equitable sharing regime for FSS gateways and UMFUS systems. Specifically:
    - For the 47 GHz band, the FCC should adopt a regime that prioritizes UMFUS services in urban core areas, where small cell deployment is compatible with this spectrum's attenuation limits, while establishing a co-primary sharing regime for individually licensed FSS earth stations and UMFUS base stations in all other areas of the country, where FSS gateways using high-gain antennas would significantly limit any potential interference toward terrestrial deployments. This will provide UMFUS licensees certainty that their deployments in urban areas will not be affected by interference from FSS earth stations and will encourage both UMFUS and FSS operators in suburban and rural areas to make use of spectrum as quickly as possible without imposing unneeded limitations on either service.
    - In lower portion of the band 50.4-51.4 GHz, where FSS is co-primary, the FCC should adopt the same sharing regime as described above with respect to the 47 GHz band, but with a higher PFD limit to compensate for the slightly different propagation characteristics of this band.
    - The FCC should not make any decisions with respect to the 51.4-52.4 GHz portion of the band while the Boeing Petition[1] for reallocation is pending.

- **FSS Should be Afforded Flexibility in the 37.5-40 GHz (39 GHz) Band:**
  - In 2003, the FCC adopted rules that authorize space stations to operate in the 39 GHz band at higher PFD levels (consistent with those allowed under ITU rules) when necessary to overcome atmospheric interference caused by "rain fade", a phenomenon to which radio signals are highly susceptible in this band. However, the FCC effectively stayed those rules pending further technical studies.
  - Studies conducted by Boeing and ViaSat as part of their respective FNPRM submissions have demonstrated that the higher PFD limits will not interfere with the proposed mobile wireless 5G services.
  - The time has come for the FCC to implement its long-dormant rules.

[1] *See* Allocation and Authorization of Additional Spectrum for the Fixed-Satellite Service in the 50.4-51.4 GHz and 51.4-52.4 GHz Bands, RM 11773 (filed June 22, 2016) ("Boeing Petition").

- **FCC Must Protect Broadcasting-Satellite Service ("BSS") in the 24 GHz (24.75-25.25 GHz) Band:**
  - If the FCC enables the use of the 24 GHz band for UMFUS, it should adopt rules that protect BSS feeder links and the associated gateway earth stations.
  - If the FCC expands use of this band for FSS services, it should require that FSS operations be consistent with BSS Part 25 rules.
  - Enabling such use with appropriate protections will result in more efficient spectrum use in the band while protecting existing uses.

By Adopting a Fair and Equitable Sharing Regime, the FCC Can Make the Most Efficient Use of the Spectrum Bands Above 24 GHz, Expanding 5G Connectivity Across the United States.

- The FCC has a unique opportunity to ensure that its actions in this proceeding enable broadband connectivity across the United States. This can be best achieved by preserving the 40 GHz band for FSS operations on a primary basis and by adopting fair and equitable sharing rules across all bands shared by the FSS and UMFUS.